

SOME OBSERVATIONS ON GEOGRAPHIC RESEARCH IN CHINA¹

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Abstract. Contacts between Western and Chinese scientists have been minimal during the last 28 years. The visit of the 10 man geography delegation of the Ohio Academy of Science in August 1977 may signal a change of Chinese policy toward expanded scientific contacts. Chinese geographical studies tend to be applied rather than theoretical and conceptual. Geographers frequently work on multidisciplinary study teams. Direction of research tends to be centralized. Suffering from a long period of social stigma and neglect, academicians appear to be returning to a position of useful service in Chinese society. Research conducted at the Institute of Geography, Peking, as well as elsewhere in China, is of high quality, although emphasis continues to be placed primarily on physical geography.

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Since the establishment of the People's Republic of China (PRC) in 1949, scholars interested in Chinese political, socio-economic, and scientific developments have not been able to obtain much first-hand information. China watchers in the West have been observing intently for nearly three decades, but have seen little. The door of China has been largely closed to foreign visitors. During this period the Chinese have experimented with both radical and pragmatic programs in an effort to revolutionize their economy and society. The pattern of livelihood of a quarter of mankind has been transformed fundamentally, from one plagued by frequent famines and diseases, into one assured of shelter and stable food supply. National pride lost during the tragic one-hundred years following the Opium War has now been restored.

The development of science has followed closely the political wind, which has the tendency to shift directions. Before the "ping-pong" diplomacy of 1971, few Westerners were allowed to go to the PRC. Since then more, but still extremely few, Western scholars, mainly scientists, have been invited to visit China.

In early 1977 the Chinese authorities decided to launch an intensive campaign to modernize the country by the end of the century. Under the rubric of "Four Modernizations" (*ssu-ko hsien-tai-hua*), the campaign attempts to bring rapid improvements to agriculture, industry, national defense, and science. In this regard, the development of science and technology is given heavy emphasis. It is hoped that a rapid development of science would lead the way for other components of modernization to follow.

The basic approach of the campaign is in line with the general Chinese guideline for economic growth known as "walking on two legs" (*liang-l'iao-l'ui tsou-lu*), meaning that economic development should not be limited to any one approach. In the development of science and technology, both foreign and indigenous approaches are emphasized. Although the introduction of foreign scientific and technological know-how has been increasing since 1971, the Chinese believe that modernization would have to be achieved through "self-reliance."

It was evident to the Chinese that in order to introduce Western scientific know-how into China, contacts with Western scientists had to be enlarged. Since 1971, a number of American scientists have been invited to visit China,

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and most of them have been organized into tour groups by the Committee on Scholarly Communications with the PRC, a committee of the National Academy of Sciences. On the Chinese side, the coordination of exchange visits is handled mainly by the Scientific and Technical Association of the PRC (STA).

A request for a visit by an American delegation of geographers was sent initially to the Chinese Academy of Sciences in Peking in 1975 by the Ohio Academy of Science. Ultimately, the inquiry was transmitted internally to the STA. In April 1977, the STA extended an official invitation and proposed an exchange of delegation visits.

This exchange involved ten professional geographers representing the Ohio Academy of Science who visited the PRC for most of the month of August 1977.* A return visit of ten Chinese geographers is scheduled for October 1978. The exchange is significant in that it is the first such sponsored by the STA without going through the Committee on Scholarly Communications with the PRC, and the first organized by a state academy of science in the United States. Because of this, speculation persists that the exchange may signal a change of Chinese policy to expand scientific contacts outside the established channel.

For members of the delegation, the visit to China was truly exciting and academically rewarding. The itinerary we followed took us to eight major cities, three villages, many small factories and research institutions in six provinces (fig. 1). The trip was designed to give us a first-hand acquaintance with both north and south China, and to bring us into contact with Chinese geographers, urban planners, and other scientists and research workers for exchange of ideas and infor-

mation. We were permitted to visit with researchers at every scientific organization we had requested in our original proposal, except for those in places too far to reach in our limited time.

Eleven lengthy meetings and seminars were held with Chinese geographers, urban planners, and other scientists. As a result of the free exchange of views, our careful and persistent questioning, and through visits to laboratories, and research facilities we were able to make several general observations on the current trends of scientific work and research activities in geography, and the major directions of urban planning.

RESEARCH SETTING

First, Chinese geographical and planning studies tend to be strongly oriented toward what might be termed "applied" geography. Whereas theoretical and conceptual studies are appreciated and are made to a limited extent, academic study is primarily viewed as having a purpose in "socialist construction" to develop the country's resources, to maximize efforts to increase production and output, and to sustain overall increases in the standard of living. In the selection of research problems, academicians and researchers look for guidance to those who exercise supervision. It was our impression that the Chinese Academy of Sciences, where most of the best Chinese scientists are employed, plays a crucial role in the determination of research priorities. For complex problems involving more than one branch of science, interdisciplinary teams consisting of hundreds of workers are almost invariably formed by the Academy. We learned that a team had recently been sent to Tibet to investigate that region's natural resources and land use, and that another team has done extensive work on resource evaluation and utilization problems in the loess plateau areas of the middle reaches of the Yellow River, where soil erosion has been a serious problem since ancient times. Geographers, soil scientists, biologists, and geologists were among those in both teams.

We observed that while there is some newly acquired equipment, laboratory facilities are, on the whole, less than

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adequate and modern. One reason for this, of which the Chinese frequently reminded us, was that the "Gang of Four," who exercised much influence during and after the Cultural Revolution (1966-69), has had a strong negative im-

pact on the development of science. In their efforts to seize state power, it was pointed out, disruption of on-going activities in all areas of state affairs was one of the first steps taken by the Gang. During the Cultural Revolution, institutions

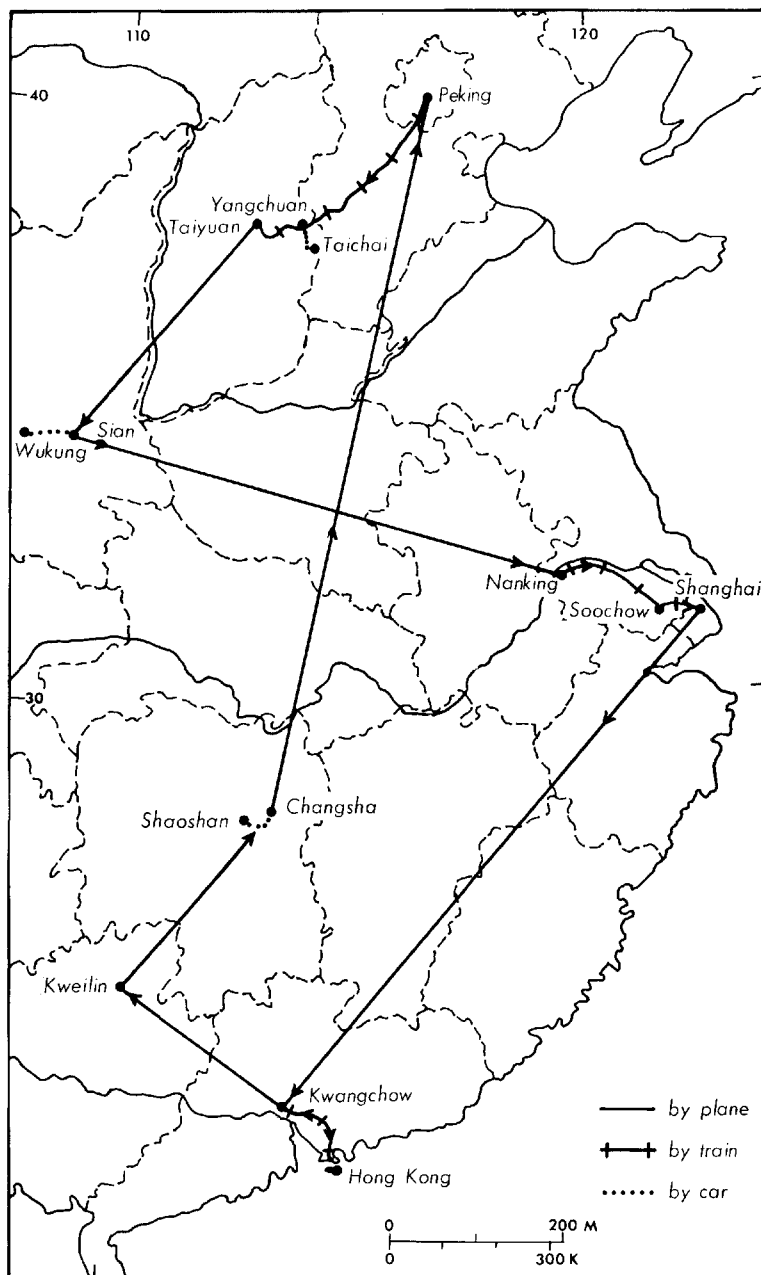


FIGURE 1. Route of travel of The Geography Delegation of The Ohio Academy of Science.

of research and higher education were closed and almost all academic activity suspended.

While schools and universities were reopened after that chaotic period, scientific work has not fully recovered, a fact attributed to the control of many centers of higher learning and research by the Gang and the group's contempt for intellectuals, who were branded by the Gang as the "stinking ninth category" (*"ch'ou-lao-chiu"*), below eight other undesirable social elements including counter-revolutionaries, rightists, renegades, enemy agents and unrepentant "capitalist-roadsters". Little scientific equipment has been upgraded, or even properly maintained, with the result that physical facilities in research installations often are below American standards. After our return, we have learned from the Chinese press that efforts are now being made in China to enable research institutions to share their modern, expensive, and advanced equipment. Presumably this will take place in large cities only.

We did not have an opportunity to visit many libraries to assess their holdings. The well-known Peking University has an excellent library with over three million volumes and it receives most of the leading foreign scientific periodicals. The Soil Research Institute of Nanking appears to have a large, although much dated, collection of books. Its subscription to foreign periodicals appeared to be excellent, as was the case at the geography department library of Shanghai Normal University. An informal, unescorted visit to the municipal library in Kweilin, a provincial city of about 210,000 population, revealed heavily used reading rooms and a surprisingly wide range of technical and scientific works in Chinese.

Impressive gains appeared to have been made in the rural countryside where agricultural research is conducted at the grassroots levels. A "Four-Level Agricultural Network" designed to promote new farming techniques and to develop better seeds functions as a catalyst of agricultural change. The network links together the four basic administrative levels of the county, the commune, the production brigade and the production

team. In a commune about twenty miles north of Canton, we observed a surprisingly well-equipped county soils testing laboratory. Equipment was fairly new and quite sophisticated.

Scientists work closely with the peasants to better develop the rural economy. Many communes, and even production brigades, use maps in economic planning. For cartographic training, large research centers normally provide the necessary assistance by sending qualified personnel to the countryside where training sessions are organized by the rural agricultural research network for commune members. As a result, many communes and brigades can produce their own maps. Their base maps are uniform and provided by the state.

INSTITUTE OF GEOGRAPHY

Research at the Institute of Geography, the Chinese Academy of Sciences, Peking, is heavily oriented toward physical geography, especially geomorphology. A newly published volume (December 1976) of a serial publication entitled *Ti-li chi-k'an* (*Collected Papers on Geography*) is devoted entirely to geomorphology. A quick examination of the contents indicates that fluvial geomorphology, tectonic research, and geomorphic mapping dominate the volume.

Many papers delivered by members of the Institute of Geography were of high quality, and they represent another major area of geographic research: the study of land capacities in crop production. At least three papers dwelt on the theme of analyzing the present patterns of agricultural land use by classification, and recommending future land uses. The potential of presently unused land was estimated and recommendations for the future made.

One paper, related to land use, dealt with sandy deserts in north China in terms of their origin, utilization, and transformation.

Agricultural regionalization represents the third major topic of study by Chinese geographers. Its purpose is to analyze agricultural resources on a regional basis so that comprehensive plans of agricultural development involving farming, forestry, animal husbandry, fishery, and

subsidiary farming activities can be made. In the 1960s, more than twenty provinces conducted studies on agricultural regions, a task still being continued today. We were told that many of the recommendations made by geographers and others have been adopted by the state. Research reports, however, are rarely published, especially those with policy implications. Statistical information was particularly difficult to obtain. In addressing foreign visitors, the Chinese use percentages without providing any base data. It was our impression that Chinese geographers and urban planners do possess much more detailed regional data than those released.

The Institute of Geography prepared more papers than could be delivered in the few days we were in Peking. The papers we missed, but whose titles we learned, dealt with: (1) modern and pleistocene glaciation and their geomorphological features in China, (2) the effects of tropical oceans on the long-term fluctuation of the Western Pacific Subtropical High, (3) a catchment model for calculating flood peak discharge resulting from storm rainfall, (4) the geochemical character of hydrogen, oxygen isotopes in the high altitude region of Mt. Jolmolungma, and (5) major characteristics of fluvial geomorphology in China.

Economic geography appears to have occupied a relatively minor position in China's geographic profession, under the shadow of physical geography. A lengthy general report delivered at the Institute, however, pointed out a number of research activities in which economic geographers were engaged jointly with other scientists. Although details are lacking, the activities relate to economic investigations associated with newly completed railroads and inland waterways; survey of natural resources in industrial areas as well as in distant border regions; planning of cities and of commune production; demarcation of agricultural regions in the loess plateau; and mediation of disputes between industry and agriculture involving land and water resources. In addition, geographers in Shanghai have carried out research on suburban agriculture and on the selection of new ports and wharf areas near the city.

URBAN PLANNING

A great deal of information was gathered on Chinese urban planning during our lengthy discussions with planners in six large cities, including Peking, Canton, and Shanghai. Briefly stated, Chinese urban planners make almost all of the important decisions in city planning with minimum participation by citizens. The shortage of good housing appeared to be the most serious problem in large cities. In all cities we visited, the major streets were wide with numerous bicycles, trucks and tractors, but little automobile traffic. Peking has an urban population of 4.5 million who own a total of 2.4 million bicycles.

The growth of large cities is specifically discouraged. Rural to urban migration does not exist in China; in fact, many urban youths have been sent to the countryside for permanent settlement. Large industries, no longer welcomed in the densely populated large cities, are now located in smaller cities or in metropolitan suburbs. All new industries must meet environmental standards. However, air pollution was very much evident in the large cities we visited. The most important source of urban air pollution appeared to be the burning of coal by both industries and residents.

The concept of self-contained neighborhoods is thoroughly followed in Chinese urban planning. For example, when a large industrial plant is built, its workers and their families are housed in one or more adjacent workers' estates constructed simultaneously. These contain almost all of the services needed by the residents, including schools, nurseries, markets and shops, clinics and recreational facilities. In older neighborhoods, efforts have also been made to bring better services to the residents.

To beautify the landscape, China has regularly mobilized the people to plant fast-growing trees in both urban and rural areas. The effect of afforestation is impressive. In urban planning, tree planting is an important task. Trees are not only planted in public parks and along major roads, but are also grown in schools, around government office buildings, along side streets, and in residential neighbor-

hoods. In Peking alone, twenty million trees have been planted since 1949.

THE STATE OF GEOGRAPHIC RESEARCH

Based on the information gathered in China, it can be stated with certainty that geographic research in China is not as diversified as that in the United States. Cultural geography, as the term is understood in the United States, does not exist in China. The Chinese strongly emphasize physical and agricultural geography. Recent developments in Western geography, such as behavioral and humanistic approaches, have been ignored almost entirely by China. Even the extensive research results of Western urban and economic geography have not had any noticeable impact on Chinese geography. The central geographic concept of space is only implicitly dealt with in Chinese research, and the theme of man-land relationship has not been considered from a more theoretical or philosophical point of view. Geography, like many other disciplines in China, is oriented toward socialist construction and production. To this end, of course, Western studies in cultural and human geography can contribute little.

Chinese geographers, however, have done excellent work in the areas of geomorphology, climatology, traditional cartography, and agricultural geography. They are also aware of, and have done, some research on computer cartography and remote sensing. There are indications that they are interested in the potential problem of environmental degradation, although little is known about the extent of their study. Although an area in which the Chinese can have much success in a relatively short period of time, the use of quantitative methods appeared to be not as widespread as in the West.

Faculty and research workers in geog-

raphy are well trained. In informal conversation and in more structured seminar exchanges, they appeared to be well informed as to current trends in American and European geography. At the same time, Chinese scientists appear to be genuinely patriotic and proud of the achievements of the past almost three decades. That the Chinese are now largely in control of their own destiny is manifest.

CONCLUSION

It is still not possible for Western scholars to travel freely in the PRC or to stay to do research either in the field or in the library. The contact established by the Ohio Academy of Science with China, however, is significant because it represents a new channel of scholarly communication between the PRC and the United States. The timing of our visit coincided with the closing of the eleventh National Party Congress, which in its communique specifically elevated the social status of Chinese intellectuals in general, and scientists in particular. The Congress also issued the official call for the "Four modernizations" and appointed a deputy director of the Chinese Academy of Sciences to the highly influential Politburo, a decision-making body at the very center of Chinese political power. Such an appointment and policy changes apparently signal the elevation of scientific and technological activities to a position of first rank in the People's Republic of China. If the current emphasis on science continues, we can expect additional scientific contacts with Chinese scholars in the future and the likelihood of greater exchange of scientific information. More broadly speaking, such contacts, as our Chinese hosts and we agreed, are an important means to further the friendship of the American and Chinese peoples and to promote the mutual understanding of the two countries.